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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/574,012

03/29/2006

Hatsuhiko Harashina

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07/29/2009

NIXON & VANDERHYE, PC

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ARLINGTON, VA 22203

EXAMINER

DOLLINGER, MICHAEL M

ART UNIT

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1796

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/574,012

Applicant(s)

HARASHINA, HATSUHIKO

Examiner

MIKE DOLLINGER

Art Unit

1796

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04/03/2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 4-7 and 11-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 4-7 and 11-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/5508)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102/103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1, 4-7 and 11-19 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Harashina (WO01/05888, herein US 6,753,363 B1 is used as an English language equivalent).
2. Harashina discloses polyacetal resin compositions comprising polyacetal and a basic nitrogen containing compound [abstract]. The basic nitrogen containing compound is used in an amount of 0.1 to 20 parts by weight per 100 parts by weight of acetal resin [31:42-43]. The basic nitrogen containing compound may be a hydrazide including monocarboxylic acid hydrazides and polycarboxylic acid hydrazides derived from C₂₋₄₀ saturated aliphatic polycarboxylic acids [30:19-20], cyclohexane dicarboxylic acid [30:21-22], C₈₋₁₆ alicyclic polycarboxylic acids [30:23-24] and others. The resin composition may also contain various additives including an antioxidant [3:1], a heat stabilizer [abstract; 31:54], and slip agent such as a poly(C₂₋₄alkylene glycol) (which

reads on a processing stabilizer) [35:35-36]. The preferred antioxidant is a hindered phenol [33:18-21]. The preferred heat stabilizer is chosen from a group of compounds including zeolite [36:5], hydrolactite [36:5], and alkaline or alkaline earth metal compounds [35:64-66] including salts of organic carboxylic acids [35:66], calcium 12-hydroxystearate [36:1], magnesium oxide and calcium oxide [36:1-2]. The composition may also contain other additives including a weather (light)-resistant stabilizer [35:38-39], impact resistance improvers [35:51-52], a colorant [35:36] and a filler [31:55]. The composition includes low molecular weight aromatic compounds including di- to tetrahydroxybenzophenones [11:4-5 and 12-14] which read on benzophenone weather (light)-stabilizers. The impact resistance improver includes core/shell polymers comprising polyurethane [35:51-54] and the composition may also include further thermoplastic polyurethane resins [8:35-36] that also read on impact resistance improvers. The composition is prepared by mixing the polyacetal resin, basic nitrogen containing compounds and the additives [36:43-48]. Harashina disclose shaped articles of the composition including automobile parts, electric/electronic parts, construction/piping parts, and daily needs parts [37:16-24].

3. Regarding claim 4, the disclosure of a dihydrazide of cyclohexandicarboxylic acid is the disclosure of a generic chemical formula. From this generic chemical formula, one of ordinary skill in the art would at once envisage dihydrazides of 1,2-cyclohexandicarboxylic acid, 1,3-cyclohexandicarboxylic acid, and 1,4-cyclohexandicarboxylic acid. When the prior art discloses a generic chemical formula encompassing a specific claimed compound, the claimed compound is anticipated if

one of ordinary skill in the art is able to "at once envisage" the specific compound from the generic formula, see MPEP § 2131.02 and *In re Petering*, 301 F.2d 676, 133 USPQ 275 (CCPA 1962).

4. Regarding claim 18, the emission of formaldehyde is an inherent property dependent on the types and amounts of components present. Since the prior art, discussed above discloses shaped articles prepared from a composition comprising the same constituents (polyacetal, hydrazide compounds as claimed in claim 1 and 4) in the same amounts (as claimed in claim 5). Thus the claimed formaldehyde emission is held to be inherently present in the disclosure of Harashina.

5. This rejection is made under 35 USC 102 because the claimed composition is disclosed with sufficient specificity to anticipate the claims. If Applicant argues that Examiner is picking and choosing from several laundry lists, Examiner notes that only the carboxylic acid hydrazide is chosen from a long list of compounds. The polyacetal is a required component, the antioxidants and heat stabilizers are preferred components and the slip agent (which reads on the processing stabilizer) is chosen from a group of only five compounds (small enough that one of ordinary skill in the art could immediately envisage use of each embodiment).

6. If Applicant still disagrees that the claimed composition is not disclosed with sufficient specificity to anticipate the claims, Examiner notes that this rejection is also made under 35 USC 103. The claimed composition is obvious over the disclosed composition because the mere fact that a reference suggests a multitude of possible combinations does not in and of itself make any one of those combinations less

obvious. *Merck & Co. v. Biocraft Laboratories*, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989).

Response to Arguments

7. Applicant's arguments, see pages 11-13, filed 04/03/2009, with respect to Mori et al (US 2003/0055143 A1) in view of Sheppard et al (US 6,518,339 B1) have been fully considered and are persuasive. The rejection of 01/06/2009 has been withdrawn.

8. Applicant's arguments filed 04/03/2009 with respect to Harashina (WO01/05888) have been fully considered but they are not persuasive. Applicant argues that the present invention is a combination of a *specific* combination of a *specific* antioxidant, a *specific* heat stabilizer and a *specific* processing stabilizer in connection with a polyacetal and a specific carboxylic acid anhydride. Applicant argues that Harashina does not disclose the specific combination and does not disclose any information about the specific processing stabilizer. This argument is not convincing. Examiner has addressed the specificity of the disclosure in Harashina in the revised rejection above, particularly paragraphs 5 and 6.

9. With regard to the arguments directed toward unexpected results, these are irrelevant because the claims are rejected under 35 USC 102. However, since the claims are also rejected under a *prima facie* case of obviousness under 35 USC 103, the arguments of unexpected results will be discussed below.

10. Applicant is reminded that any showing of unexpected results should a) compare the claimed invention to the prior art composition, b) be commensurate in scope with the claims and c) actually be unexpected (as opposed to predictable improvements).

Applicant is also reminded that any evidence must be based on quantifiable results; the subjective scales for moldability and bleeding properties found in Applicant's specification are not sufficient because they are not reproducible. Finally, Applicant must explain the significance of any differences in the results between the prior art and the claimed invention. For instance, Applicant argues that the formaldehyde emission is unexpectedly low in Examples 2-7 as compared to Example 1, but the difference is very small. If this difference is a significant improvement that would be recognized by one having ordinary skill in the art, Applicant must explain this significance.

11. Applicant has not yet shown unexpected results over the prior art of record.

a. Applicant has not compared the claimed invention to the prior art; the obvious difference between Harashina and the claimed invention is the *specific* combination of (A) polyacetal, (B) high molecular weight carboxylic acid hydrazide, (C) specific antioxidant, (D) specific heat stabilizer and (E) specific processing stabilizer. In order to compare the claimed invention to the prior art Applicant must present several data sets that compare several compositions showing unexpected results. The following shows one example of one data set:

Component	Prior Art	Prior Art	Invention
(A) polyacetal	x	x	x
(B) carboxylic acid hydrazide	x		x
(C) antioxidant		x	x
(D) heat stabilizer		x	x

(E) processing stabilizer	x	x
Results		

x=amount of component

The amount of each component must remain constant and be within the scope of the invention. Each component (A)-(E) must be a component of the invention.

- b. In order to show unexpected results commensurate in scope with the claims Applicant must show unexpected results over the breadth of each claimed genus and range. Two specific ranges/genus must be demonstrated to the full breadth: 1) The claimed genus of carboxylic acid hydrazide: Applicant must show unexpected results a C₁₆ (or slightly higher) aliphatic monocarboxylic acid monohydrazide, a C₄₀ (or slightly lower) aliphatic monocarboxylic acid monohydrazide, a C₃₀ (or slightly higher) linear or cyclic trimer acid trihydrazide, a C₆₀ (or slightly lower) linear or cyclic trimer acid trihydrazide and any oxy C₁₆₋₄₀ dicarboxylic acid mono- or dihydrazide. 2) The claimed range of the amount of carboxylic acid hydrazide of claim 5: Applicant must show at least one experimental data set (described in paragraph (a) above) for the low end of the claimed range of 0.001 parts by weight and one experimental data set for the upper end of the range of 20 parts by weight. If Applicant is unable to show unexpected results for the full breadth of the claimed range/genus, Applicant may amend the claims to put the claimed invention commensurate in scope with the unexpected results, though no new matter may be added.

- c. Applicant is reminded that any showing of unexpected results must be, in fact, unexpected. Predictable or insignificant changes in variable properties will not support a contention of unexpected results.
12. Applicant is encouraged to contact Examiner before performing experiments in order to ensure that the proposed experiments will be sufficient to show unexpected results and avoid superfluous experimentation.
13. **Applicant is reminded that the present claims are rejected under both 35 USC 102 as well as 35 USC 103. A showing of unexpected results WILL NOT overcome the rejection made under 35 USC 102. To overcome the anticipation rejection, the claims must be amended.**

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MIKE DOLLINGER whose telephone number is (571)270-5464. The examiner can normally be reached on M-F 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Randy Gulakowski/
Supervisory Patent Examiner, Art Unit 1796